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B. H. H. H. H.

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THE INCREASE OF CANCER.\* By W. ROGER  
WILLIAMS, F.R.C.S.

GENTLEMEN,—I propose this afternoon briefly to call your attention to the continuously progressive increase in the cancer mortality that has now been going on for over half a century. Its extent is shown by the following table:—

Year.	Total Population.	Total Deaths.	Cancer Deaths.	Cancer Death Rate per Million living.	Proportion to Population.	Proportion to Total Deaths.
1840	15,730,813	359,687	2,786	177	1 to 5646	1 to 129
1850	17,773,324	368,995	4,966	279	1 " 3579	1 " 74
1860	19,902,713	422,721	6,827	343	1 " 2915	1 " 62
1870	22,501,316	515,329	9,530	424	1 " 2361	1 " 54
1880	25,714,288	528,624	13,210	502	1 " 1946	1 " 40
1890	28,762,287	562,248	19,433	676	1 " 1480	1 " 29
1891	29,081,047	587,925	20,117	692	1 " 1445	1 " 29
1892	29,405,054	559,684	20,353	690	1 " 1445	1 " 27
1893	29,731,100	569,958	21,135	711	1 " 1407	1 " 27

The state of affairs thus revealed is of grave import. It seems certain that if unchecked, cancer will ere long become one of the commonest diseases of modern communities. Even now cancer causes more than four times as many deaths as typhoid fever; but while medical officers of health devote so much attention, in their reports, to the latter disease—which is decreasing—they hardly ever even allude to the former, and I believe they consider cancer outside their sphere. It is necessary to speak plainly on this subject, because the bulk of the profession and the general public, owing to the prevailing indifference, have but a very inadequate idea of its importance. It is high time that this neglect should cease. The subject is one that requires

\* A paper read at the Annual Meeting of the Lancashire and Cheshire Branch of the British Medical Association, held at Liverpool on June 19, 1895.

prompt and thorough investigation on a larger scale than can be undertaken by any individual. It is a matter of national concern.

Perusal of the lately issued report of the Registrar-General, which shows that the cancer death-rate has yet again surpassed every previous record, has induced me to bring the subject forward this afternoon, although the remarks I have to make are but a repetition of what I have previously stated.

In 1840, cancer caused 2786 deaths, the proportion being one in 5646 of the total population, one in 129 of the total mortality, or 177 per million living.

In 1893, it caused 21,135 deaths, the proportion being one in 1407 of the total population, one in 27 of the total mortality, or 711 per million living.

Thus the proportionate mortality from cancer now is more than four times greater than it was about half a century ago. I calculate that there cannot be fewer than 42,000 persons now suffering from cancer in England and Wales; whereas, in 1840, the number was only about 5,500. In this respect its position is unique: no other disease can show anything like such an immense increase.

This continuously progressive augmentation of the cancer death-rate cannot be accounted for by mere increase of population, as is evident from the fact that its rate of increase has proportionally been much in excess of this; and there is far too much uniformity in the variations of the increments of increase in the long succession of years, to warrant its being ascribed to improved diagnosis or other casual error. Moreover, as I have elsewhere shown,\* the increase has not been confined to one or a few parts of the body; but it has involved them all—on the whole without any considerable disturbance of the normal proportionate localisation ratios. Lastly, the increase has been diffused over the whole country, instead of being limited to certain areas only; so that those parts that formerly had the highest, lowest, and average cancer death-rates, still preserve their distinction in these respects, although the cancer mortality

\* "Diseases of the Breast, with special reference to Cancer," London, 1894, p. 281.

has everywhere augmented. There can, therefore, be no doubt as to its reality.

The attempt to explain this sinister increase as due to the average age of the population having advanced, and the consequent liability of greater numbers, will not bear critical examination, for the saving of life in modern times has been almost exclusively confined to early years. The death-rates of males over 35 and of females over 45 have actually increased, while the numbers that attain old age have decreased. This increased mortality at post-meridian ages, is no doubt largely due to the survival in augmented numbers of weakly lives, artificially prolonged by improved conditions of existence; but, according to Dr Newsholme, not more than  $\frac{1}{40}$ th of the increased cancer mortality can be thus accounted for. Besides, it is a mistake to assume that increased cancer mortality is a necessary corollary of the survival of augmented numbers to the cancer age. The average age of the Irish population is much higher than that of the English or Scotch; yet the cancer mortality of Ireland is far less than that of either England or Scotland. Hence it is doubtful whether the higher age of the agricultural, as compared with the industrial population, in any way explains the greater proneness of the former to cancer.

In conclusion, I must direct attention to the remarkable decline in the death-rate from phthisis and other tubercular diseases, that has coincided with this great increase in the cancer mortality; while the latter has more than quadrupled during the last fifty years, the former has diminished by more than one-half. The latest ascertained cancer death-rate is the highest on record; while that for tubercle is the lowest. I regard this decline in the prevalence of tubercular disease as the outcome of improved hygienic conditions, due to that augmented national prosperity; which, as I have elsewhere endeavoured to show, by its action in another direction, is also responsible for the increased cancer mortality. Thus there appears to be some truth in the curious paradox, that a high cancer mortality is an indication of good sanitary conditions.

It seems to me exceedingly probable, from considerations derived from the study of the family history of cancer patients, that a large proportion of those thus saved from tubercle eventually perish of cancer and insanity; and I think the increase in the latter diseases has largely been brought about in this way.





